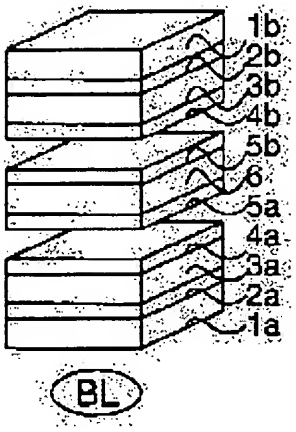
OPTICAL COMPENSATION SHEET, ELLIPTICALLY POLARIZING PLATE AND LIQUID CRYSTAL DISPLAY DEVICE

(11)Publication number :
2001-100031
(43)Date of publication of application :
13.04.2001
(21)Application number :
11-277572
(22)Date of filing :
29.09.1999

(71)Applicant :
FUJI PHOTO FILM CO LTD
(72)Inventor :
MORI HIROYUKI



(57)Abstract:
PROBLEM TO BE SOLVED: To accurately optically compensate a TN liquid crystal cell.
SOLUTION: The optical compensation sheet has a transparent support and an optical anisotropic layer formed from discotic liquid crystal molecules aligned at 5 to 85 average tilt angle in which the tilt angle of the discotic liquid crystal molecules changes with the distance of the discotic liquid crystal molecules from the face o the transparent support. In this sheet, a polymer film having optically positive uniaxial or optically biaxial property and having the direction of the maximum refractive index substantially parallel to the transparent support face is used for the transparent support. The transparent support is disposed in such a manner that the direction of the maximum refractive index of the transparent support is substantially parallel or perpendicular to the average direction of lines obtained by projecting the normal lines of the disc faces of the discotic liquid crystal molecules onto the transparent support side.

CLAIMS

[Claim(s)]
[Claim 1] It has the optical anisotropy layer formed from the discotheque mesomorphism molecule which is carrying out orientation with a transparent base material and 5, or the

average tilt angle of 85 degrees. The tilt angle of a discotheque mesomorphism molecule is the optical compensation sheet which is changing in connection with the distance of a discotheque mesomorphism molecule and a transparent base material side. A transparent base material has optically uniaxial [positive] or optical optically biaxial optically. the direction of the maximum refractive index substantially with a transparent base material side from an parallel polymer film The optical compensation sheet characterized by being arranged as it is parallel or lies at right angles to the average direction of the line by which the direction of the maximum refractive index of a transparent base material projects the normal of the disk side of a discotheque mesomorphism molecule on a transparent base material side, and is obtained substantially.

[Claim 2] The optical compensation sheet according to claim 1 with which a transparent base material consists of a polycarbonate film.

[Claim 3] The optical compensation sheet according to claim 1 with which a transparent base material consists of uniaxial stretching or a polycarbonate film which carried out biaxial stretching.

[Claim 4] A transparent base material consists of a layered product of a polycarbonate film and a cellulose-ester film. A polycarbonate film has optically uniaxial [positive] or optical optically biaxial optically, and the direction of the maximum refractive index has it. [substantially / as a transparent base material side / parallel] The optical compensation sheet according to claim 1 arranged as it is parallel or lies at right angles to the average direction of the line by which the direction of the maximum refractive index projects the normal of the disk side of a discotheque mesomorphism molecule on a transparent base material side, and is obtained substantially.

[Claim 5] an optical anisotropy layer [which was formed from the discotheque mesomorphism molecule which is carrying out orientation with 5 or the average tilt angle of 85 degrees], transparent base material, and polarization film -- and A transparent protective coat is the elliptically-polarized-light board by which the laminating is carried out to this order, and a transparent base material has optically uniaxial [positive] or optical optically biaxial optically. the direction of the maximum refractive index substantially with a transparent base material side from an parallel polymer film The elliptically-polarized-light board characterized by being arranged as it is parallel or lies at right angles to the average direction of the line by which the direction of the maximum refractive index of a transparent base material projects the normal of the disk side of a discotheque mesomorphism molecule on a transparent base material side, and is obtained substantially.

[Claim 6] It is the liquid crystal display which consists of two polarizing plates arranged at a TN liquid crystal cell and its both sides. an optical anisotropy layer [which was formed from the discotheque mesomorphism molecule in which at least one side of a polarizing plate is carrying out orientation with 5 or the average tilt angle of 85 degrees], transparent base material, and polarization film -- and A transparent protective coat is the elliptically-polarized-light board by which the laminating is carried out to this order from the liquid crystal cell side. A transparent base material has optically uniaxial [positive] or optical optically biaxial optically. the direction of the maximum refractive index substantially with a transparent base material side from an parallel polymer film The liquid crystal display characterized by being arranged as it is parallel or lies at right angles to the average direction of the line by which the direction of the maximum

refractive index of a transparent base material projects the normal of the disk side of a discotheque mesomorphism molecule on a transparent base material side, and is obtained substantially.